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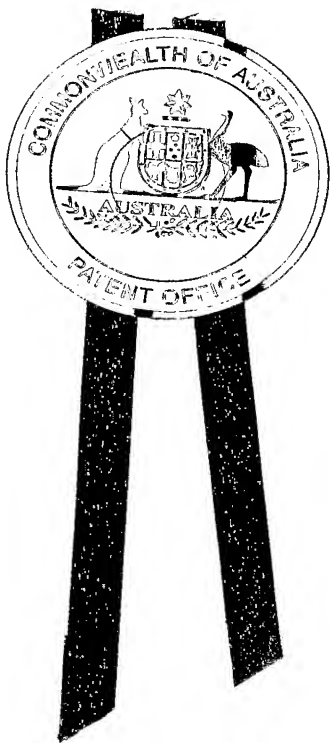
Patent Office
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I, JANENE PEISKER, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2004902736 for a patent by FRANK DANIEL LOTRIONTE as filed on 18 March 2004.

WITNESS my hand this
Fourteenth day of April 2005

A handwritten signature in cursive script, appearing to read 'J. R. + C.'.

JANENE PEISKER
TEAM LEADER EXAMINATION
SUPPORT AND SALES



AUSTRALIA
Patents act 1990

COMPLETE SPECIFICATION
INNOVATION PATENT

IMPROVED FAN

The following statement is a full description of this invention , including the best method of performing it known to me :

IMPROVED FAN

Technical Category : Mechanical, Electrical and electronics.

This invention aims at supplying the required air flow and /or pressure differential for various applications including cooling , ventilation , light aircraft / hover craft propulsion etc. from a reduced product size and / or available input power requirement with a specially designed fan that maximizes the conversion of torque into airflow , by means of concentrating most of the work done (where it is of maximum efficiency) at its circumference , as well as by combining the total effects of an axial vane type fan , a helically pitched blade type fan and a centrifugal fan , all working in conjunction , to create air or gas flow in and through it.

DESCRIPTION

A number of curved section , longitudinally orientated " vanes " # 1 with a pronounced longitudinal twist or "helix " protruding mainly toward the rotation direction # 2 , rotatably fixed parallel to the axial centerline and inward air flow direction , fixed to the outer "frontward " ends of an equal number of outwardly projecting blades containing a slight increasing surface curvature in both their outer horizontal and vertical planes # 3 thus permitting full co - joining at their respective junctions, see Figure 1 , are centrally connected and radially displaced around a central hub or shaft. # 4

The impellor is constructed in such a way to allow cavity mouldability in plastics or forming in sheetmetal , aluminium, either as one complete unit or to be assembled in sections .

ABSTRACT :

This invention essentially comprises of a conjunction / co-operation of a multi - bladed fan or propellor with a forward projecting vane type fan that operates both as a centrifugal vane type fan as well as a extension of the working area at the outer edge of the multi-bladed fan providing the maximum efficiency possible in a given working diameter (to reduce inertia and required input power) and consists of a number of individual outwardly projecting thin , slightly curved surfaces (blades) inclined at approximately 50 degrees to the inward air flow , that have at their respective outer, most frontward edges , a typically curved section substantially forward projecting extension , twisted or slanted in a slight helix angle similar but slightly less than the inclination angle of the blades they are joined to , all being radially displaced and attached to a central hub rotating perpendicular to the airflow direction.

The claims defining the invention are as follows :

1.
A fan or propellor that consists of a number of " vanes" with a curved section spanning approximately 45 - 80 degrees , with a pronounced longitudinal twist or "helix " of approximately 55 degrees to the axial centerline of the complete assembly , and toward the rotation direction , rotatably positioned in a circular pattern , parallel and equi-distant from the axial centerline and inward air flow direction, protruding from the outer "frontward " ends of an equal number of outwardly projecting blades containing a slight increasing surface curvature in both their outer horizontal and vertical planes and inclined at an approach angle slightly less than the twist or "helix " angle to the inward airflow , thus permitting co - joining at their respective junctions, are all radially displaced and centrally connected to a central hub or shaft.
2.
A fan or propellor as claimed in claim 1 that has leading and trailing edges as well as inner and outer tips of the blades and vanes radiused and sharpened to reduced wind resistance , turbulence and drag .
3.
A fan or propellor that is moulded in rigid plastics or manufactured in cavity moulds or formed in cast, forged , pressed sheet metal or aluminium either as one unit or as assembled from individual components by riveting , bolting , welding etc.
4.
A fan or propellor as herein before described with references to Figures 1 -4 of the accompanying drawings.

IMPROVED FAN

Frank Lotrionte 16-3-2004

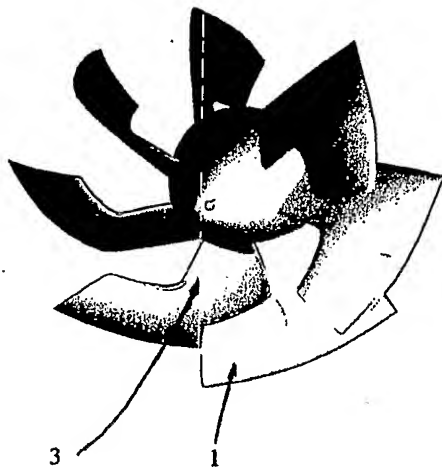


Fig 1

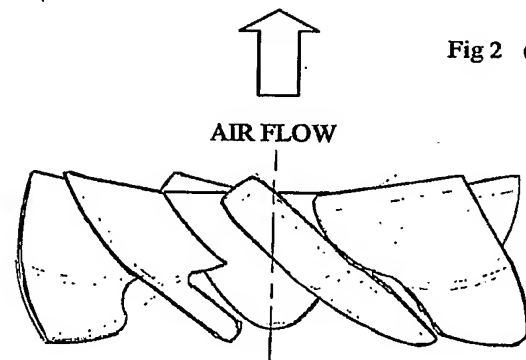


Fig 2 (top view)

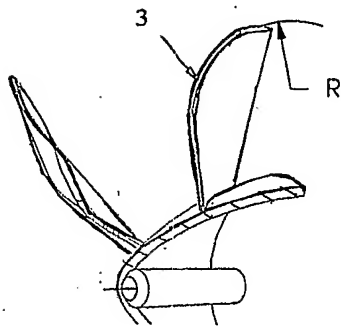


Fig 4 (section A-A view of blade)

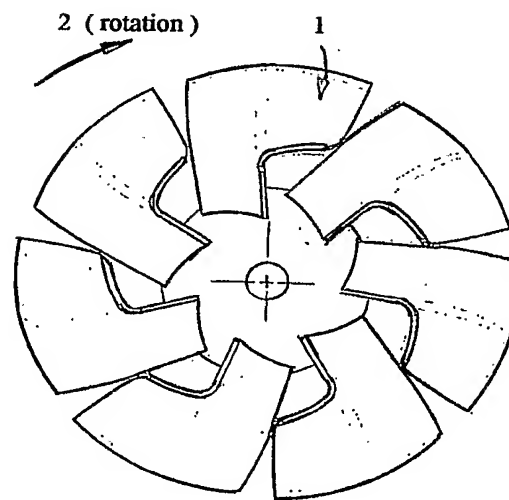


Fig 3 (front view)